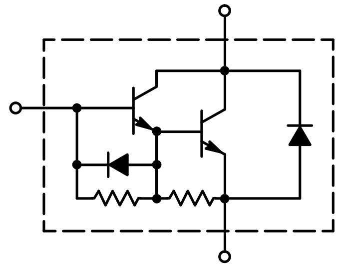
BU806

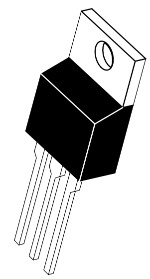
NPN Darlington Power Transistor

This Darlington transistor is a high voltage, high speed device for use in horizontal deflection circuits in TV's and CRT's.

- High Voltage: V_{CEV} = 330 or 400 V
- Fast Switching Speed:
  t_c = 1.0 µs (max)
- Low Saturation Voltage:
  $V_{CE(sat)}$ = 1.5 V (max)
- Packaged in JEDEC TO–220AB
- Damper Diode V_F is specified.
  V_F = 2.0 V (max)



8.0 AMPERE
DARLINGTON
NPN POWER
TRANSISTORS
60 WATTS
200 VOLTS



CASE 221A–06
TO–220AB

MAXIMUM RATINGS

Rating	Symbol	BU806	Unit
Collector–Emitter Voltage	V_{CEO}	200	Vdc
Collector–Emitter Voltage	V_{CEV}	400	Vdc
Collector–Base Voltage	V_{CBO}	400	Vdc
Emitter–Base Voltage	V_{EBO}	6.0	Vdc
Collector Current — Continuous — Peak	I_C	8.0 15	Adc
Emitter–Collector Diode Current	I_F	10	Adc
Base Current	I_B	2.0	Adc
Total Device Dissipation, T_C = 25°C Derate above T_C = 25°C	P_D	60 0.48	Watts W/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–65 to 150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	2.08	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	70	°C/W
Lead Temperature for Soldering Purposes, 1/8″ from Case for 5.0 Seconds	T_L	275	°C

REV 1

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector–Emitter Sustaining Voltage (1) (I_C = 100 mAdc, I_B = 0)		$V_{CEO(sus)}$	200	—	—	Vdc
Collector Cutoff Current (V_{CE} = Rated V_{CBO}, V_{BE} = 0)		I_{CES}	—	—	100	μAdc
Collector Cutoff Current (V_{CE} = Rated V_{CEV}, $V_{BE(off)}$ = 6.0 Vdc)		I_{CEV}	—	—	100	μAdc
Emitter Cutoff Current (V_{EB} = 6.0 Vdc, I_C = 0)		I_{EBO}	—	—	3.0	mAdc
ON CHARACTERISTICS (1)						
Collector–Emitter Saturation Voltage (I_C = 5.0 Adc, I_B = 50 mAdc)		$V_{CE(sat)}$	—	—	1.5	Vdc
Base–Emitter Saturation Voltage (I_C = 5.0 Adc, I_B = 50 mAdc)		$V_{BE(sat)}$	—	—	2.4	Vdc
Emitter–Collector Diode Forward Voltage (I_F = 4.0 Adc)		V_F	—	—	2.0	Vdc
SWITCHING CHARACTERISTICS						
Turn–On Time	(Resistive Load, V_{CC} = 100 Vdc, I_C = 5.0 Adc, I_{B1} = 50 mAdc, I_{B2} = 500 mAdc)	t_{on}	—	0.35	—	μs
Storage Time		t_s	—	0.55	—	μs
Fall Time		t_f	—	0.20	—	μs
Crossover Time (I_C = 5.0 Adc, I_{B1} = 50 mAdc, $V_{BE(off)}$ = 4.0 Vdc, V_{clamp} = 200 Vdc, L = 500 μH)		t_c	—	0.40	1.0	μs

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 1%.

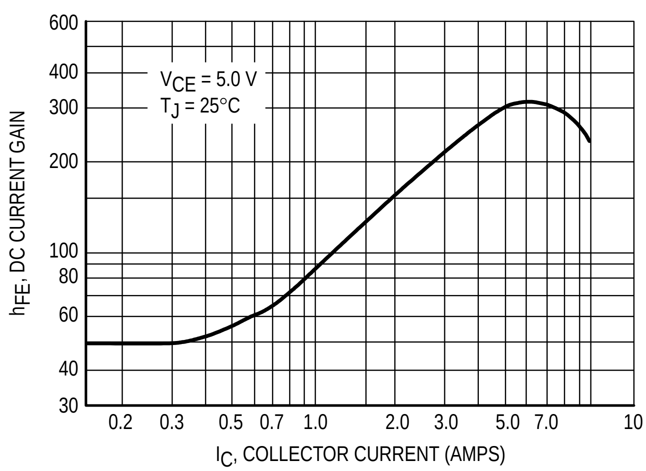


Figure 1. DC Current Gain

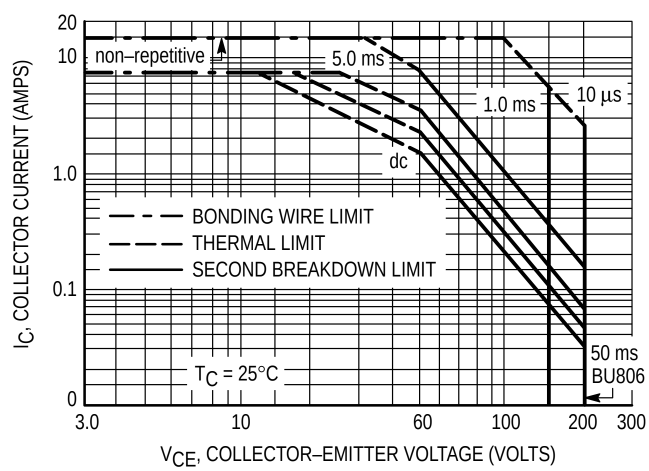
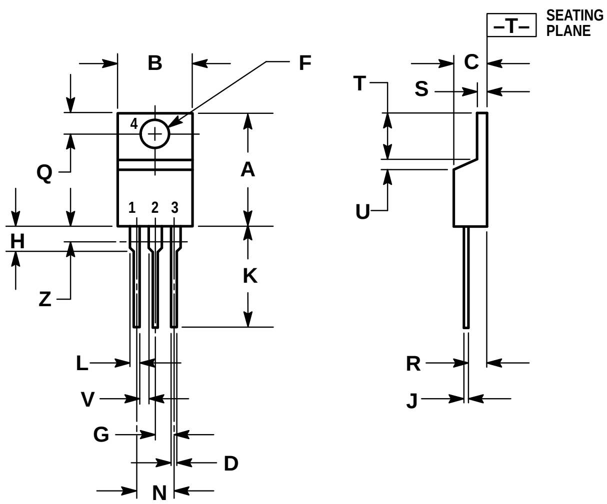


Figure 2. Safe Operating Area (FBSOA)

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.147	3.61	3.73
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.018	0.025	0.46	0.64
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	–––	1.15	–––
Z	–––	0.080	–––	2.04

STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

CASE 221A–06
TO–220AB
ISSUE Y

How to reach us:
USA / EUROPE: Motorola Literature Distribution;
P.O. Box 20912; Phoenix, Arizona 85036. 1–800–441–2447

MFAX: RMFAX0@email.sps.mot.com – TOUCHTONE (602) 244–6609
INTERNET: http://Design–NET.com

JAPAN: Nippon Motorola Ltd.; Tatsumi–SPD–JLDC, Toshikatsu Otsuki,
6F Seibu–Butsuryu–Center, 3–14–2 Tatsumi Koto–Ku, Tokyo 135, Japan. 03–3521–8315

HONG KONG: Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,
51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852–26629298